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Forest
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Subject: **China Flat Healthy Forest Restoration Act (22041)**

To: Ken Romberger, Groveland Silviculturist
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South Sierra Shared Service Area, Forest Health Protection, Beverly Bulaon and Martin MacKenzie evaluated most of the proposed area of the China Flat project on March 12, 2008. FHP was requested to supply input for NEPA documentation regarding any forest health concerns (primarily insects and diseases) observed during their evaluation.

Observations and Discussion

Half of the China Flat project is composed of plantations of varying ages – most of which were initiated soon after the 1987 Complex Fire. The remaining areas are natural stands untouched by fires or areas that naturally revegetated after fire damage. Plantations in the 20-30 year category are very dense and compact, and crowns were significantly overlapping. However, good growth was still evident in height and needle retention.

Past insect activities that have been documented on plantations in the district have been few so far. In the early 90's when plantations were still very young, there was an outbreak of Pine Reproduction Weevil (*Cylindrocopturus eatoni*) that was successfully controlled by the district. In 2005-2006, a small outbreak of Pine needle sheathminer (*Zelleria hiambachi*) was infesting plantations in the area of China Flat. No mortality was observed, but significant loss of older year needles was evident on affected trees.

Although some cases of white pine blister rust in maturing sugar pines were observed the level of this disease should not warrant any alterations to the proposal. As the proposal does not involve harvesting any of the larger sugar pines it is not possible to significantly alter the outcome of this disease in the residual natural stands. Further this project will not jeopardize the ongoing evaluation of the larger sugar pines for their resistance to the blister rust.

Although western dwarf mistletoe (*A. campylopodum*) infection of ponderosa pine was frequently observed it has not yet reached levels of immediate concern. However, if the project is delayed mistletoe infections will quickly reach damaging levels. Thus, as will be stated later, the timing of this project is ideal. The thinning guidelines should discriminate against mistletoe infected trees, and non-host species (oaks or Douglas fir) adjacent to the infested ponderosa pine should be favored over adjacent apparently mistletoe free trees.



From a Forest health point of view the timing of this project is ideal in this area. Our observations did not reveal any noteworthy existing or potential, insect or disease problems in the plantations. However, the recent outbreak of needleminer in plantations is an indication of the tightening resource competition between growing trees, and the need to modify current stand conditions. Although insect and disease activity is at an acceptable level today if untreated for another 5-7 years, it is highly likely that tree insect and disease mediated mortality levels will increase significantly. Improving tree vigor by creating growing space and redistributing resources will decrease tree susceptibility to insects and disease. Proposed mastication treatments will be beneficial in reducing, both the basal area and the host material available for bark beetles to breed in. The proposed residual spacing in plantations is appropriate.

Based on our observations of the natural stands, fuel treatments may not considerably reduce the long-term or even current risk of insect/disease infestation because of the limited reduction in overall basal area. Larger mature trees in natural stands may benefit from the removal of surrounding seedlings or competing brush, but if density is still within the risk threshold for bark beetle attack, future treatments may be required. However, treatments will affect other factors that influence bark beetle selection behavior such as microclimate and air movement within stands. Altering contributing factors is always better than no action.

Proper slash treatment and fire-damage after management activities would be the primary concern for this project. Treatments that render slash uninhabitable to bark beetles should be high priority in clean-up efforts. Because activities cannot be perfectly timed around multiple beetle flight periods, it is imperative to treat slash as soon as possible after creation. Intensive fire-damage evaluation of residual trees after prescribed burns will help managers identify susceptibility of stand to potential beetle attacks. FHP can help provide detailed guidelines for proper slash treatment and subsequent monitoring if necessary.

FHP fully supports the district's efforts in promoting healthy forest conditions that also protect human life and property. The proposed treatments will improve current forest conditions and benefit surrounding communities against possible wildfires.

/s/ Beverly M. Bulaon
Forest Entomologist

/s/ Martin Mackenzie
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